REMARKS

Claims 1-3, 10-12, 19-34 and 36-48 are pending in the present application. Claims 1-3, 10-12 and 36 were amended in this response. Claim 35 was cancelled, without prejudice. No new matter has been introduced as a result of the amendments. Support for the amendments can be found, for example, on page 2, lines 27-32, and page 9, lines 18-29

Claims 1-3, 10-12, and 19-48 were rejected under 35 U.S.C. §103(a) as being unpatentable over the publication "Data Communications, Computer Networks and Open Systems" by *Halsall* (herein after "*Halsall*") in view of *Frezza* (US Patent 4,982,430). Applicants respectfully traverse this rejection. Favorable reconsideration is earnestly requested.

Specifically, the cited art, alone or in combination, does not teach grouping the digital data into a number of data segments by a computer, wherein the data segments are grouped irrespective of their original order as recited in claim 1, and similarly recited in claims 2-3 and 10.

Halsall teaches a method for detecting errors occurred during a transmission of a bit stream, whereby a commutative checksum is used to identify the errors in the transmission of the data. In particular, *Halsall* teaches a parity checksum and a cyclic redundancy checksum method, whereby the parity checksum methods are best suited to applications in which single-bit errors are present, whereas the cyclic redundancy checksum method is best suited to applications in which bursts of errors occur.

However, as *Halsall* discloses both methods have a disadvantageous effect, in that they are only able to identify errors under very specific conditions. The parity checksum method for example can detect only two bit errors in a character and that only if no two bit errors occur in the same column (bit position) at the same time (page 129, line 12 et al.). The cyclic redundancy method can only determine the length of an error burst and that only if the last erroneous bit in a burst and the first erroneous bit in the following burst are separated by B or more correct bits, where B is the length of the error burst (see *Halsall* page 130, sec. 3.4.3, line 6 et al.). As such, the data segments require a specific order before they may be grouped.

In contrast, the claimed commutative linking of segment checksums, a data stream may be checked independently of a sequence of the data packets in the data stream. Furthermore, through commutative linking, data segments need not arrive in the same order they were sent in

order to compute a cryptographic operation on the checksum. Thus, regardless of the sequence of the data packets, a commutative linking of the individual segment checksums with respect to a commutative checksum independently of their linking sequence provides the same checkable value to be compared; i.e., the commutative checksum. It is therefore guaranteed by the forming of the checksum and by its subsequent commutative linking that the commutative checksum always receives the same value regardless of the sequence of the data segments.

Regarding claims 11 and 12, both claims recite the feature of segment checksum being formed in accordance with a type selected from the group consisting of a hashing value and a cryptographic one-way function. None of the cited references disclose this feature incorporated as a whole in the other claimed features

In light of the above, Applicants respectfully submit that independent claims 1-3 and 10-12 of the present application, as well as claims 19-34 and 36-48 which respectively depend therefrom, are both novel and non-obvious over the art of record. Accordingly, Applicants respectfully request that a timely Notice of Allowance be issued in this case. If any additional fees are due in connection with this application as a whole, the Examiner is authorized to deduct said fees from Deposit Account No.: 02-1818. If such a deduction is made, please indicate the attorney docket number (0112740-466) on the account statement.

Respectfully submitted,

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